Swimming in their Own Direction: Explaining Domestic Variation in Homegrown Sustainability Governance for Aquaculture in Asia

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Abstract

Agricultural commodity production in the Global South is accompanied by a range of social and environmental problems ranging from pollution and deforestation to labor rights violations. Accordingly, governments and non-state actors have responded through various governance initiatives aimed at promoting sustainable commodity production. While the existing literature focuses largely on transnational standards originating in the North, we investigate "homegrown" approaches in the South by asking: what explains variation in the design and features of sustainable commodity governance led by Southern states, businesses or NGOs? By comparing sustainable aquaculture governance in Thailand, Vietnam, and China, we derive a novel conceptualization of two distinct types of homegrown approaches – certification standards and capability-building programs – and suggest that the choice between the two is contingent on the supply of, and demand for, sustainable commodity governance. We find decisions by Southern governments to supply governance can lock-in top-down approaches and exclude potentially more impactful bottomup approaches. We therefore argue that the material resources and normative concerns of Southern governance entrepreneurs lead to different homegrown approaches. Our findings contribute theoretical insights to the literature on transnational governance interactions and practical observations about the utility of different approaches to sustainability concerns in the Global South.

1. Introduction

The expansion of agricultural production creates serious sustainability challenges, including resource depletion, environmental pollution, and biodiversity loss (Tilman et al. 2002; Clay 2004). In light of the inability or unwillingness of states to create or implement policies to address these issues, civil society groups and businesses have initiated sustainability standards and certification schemes to promote sustainable commodity production in global value chains (Auld 2014; Green 2014; van der Ven 2019). The rise of such private forms of sustainability governance has the potential to transform global markets (Smith et al. 2019). Usage of sustainability standards is growing in nearly every country and every commercial sector (Lernoud et al. 2017). When legitimate and credible, sustainability standards hold the potential to drive environmentally and socially responsible business practices (Bernstein & Cashore 2007; van der Ven 2015).

Yet, the existing literature on sustainable commodity governance primarily focuses on initiatives established by actors in Northern consumer countries and primarily considers actors in the Global South as targets of governance (Büthe 2010)[1]. In this study, the Global South refers to developing and emerging economies, which contrast with industrialized economies in the Global North. While many governments in the Global South may lack the capacity or willingness to regulate sustainability issues, previous studies have largely overlooked the agency of Southern governance entrepreneurs, be they state or non-state actors. Due to this inattention, important questions remain unanswered about which types of governance initiatives can be created by and for the Global South and under what conditions. In this paper, our goal is to explain variation in the nature and form of "homegrown" solutions to sustainable commodity governance in the Global

[1] We recognize that "Global South" and "Global North" are contentious terms that have been conceptualized in different ways over time. The terms were first articulated, to describe the economic disparity that exists between countries located in the Northern and Southern Hemispheres, with the exception of Australia and New Zealand in the South and, to some extent, China and Eastern Europe in the North (Brandt 1980).

South. We use "homegrown" to denote governance schemes that originate and govern within the same commodity producing country. While the form and content of such schemes can resemble initiatives that emerged in Northern countries through policy diffusion or mimetic isomorphism, they often bear distinct characteristics that warrant closer examination.

Recently, studies have examined Southern actors'—especially states and industry associations—responses to Northern-led transnational private governance, especially the development of sustainability standards and certification schemes in the Global South (Hospes 2014; Schouten & Bitzer 2015; Wijaya & Glasbergen 2016). Underscoring the emergence of such Southern initiatives as a new and important phenomenon in the field of sustainability governance, most studies in this strand have examined government-led standards in producer countries and conceptualized them as part of a broader strategy by Southern actors to regain authority in global value chains. While these studies have yielded many insights, they are primarily based on similar cases of government-led action that does not capture the diverse ways in which other Southern actors such as producer groups and NGOs respond to external pressure for sustainability governance. This paper examines sustainable commodity governance in the Global South in comparative context with a view to identifying the conditions that may lead Southern state and non-state actors to take particular responses.

We ask: *what explains variation in the design and features of sustainable commodity governance led by different Southern actors?* We identify two typical forms of homegrown initiatives in the Global South that draw upon different governance strategies. First, there are standard systems, created and managed by powerful actors such as governments or industry associations. Standard systems use a top-down approach to regulate commodity production through certification and compliance verification. Elsewhere, this has been termed "rule-setting

governance" (Andonova et al. 2009). Second, there are capability building roundtables that draw upon various stakeholders within and adjacent to global value chains to define and promote codes of good practice. These initiatives focus less on rule-setting and more on problem-solving through technical assistance and organizational learning. This type may alternately be categorized as "information sharing" or "capacity building" governance (Andonova et al. 2009). By emphasizing procedural matters over substantive criteria and using less coercive sanctioning mechanisms, capability building programs bear a strong resemblance to the emerging practice of governing through best practices (Bernstein & van der Ven 2017). While we characterize standard systems and capability building roundtables as distinct modes of governance, in reality, there is considerable overlap between them. Some standard systems employ similar governance strategies to capability building roundtables and vice versa. However, we see value in conceptualizing these ideal types as important distinctions remain between them particularly when it comes to explaining their emergence.

To explain the conditions that lead Southern countries to opt for one of the two governance forms, we compare sustainable aquaculture governance in three major Asian producer countries – Thailand, Vietnam and China. Over the last two decades, these three value chains have shown important similarities in terms of their exports to Northern markets, the rise of commercial and intensive aquaculture production, and the existence of many small-to-medium sized household farms.[2] Our estimation of these three aquaculture value chains' structure is based on extensive field interviews as well as recent literature showing emerging trends in aquaculture value chains in the Global South, and Asia in particular, with the rise of commercial and increasingly intensive

[2] We use the term "small-to-medium" to differentiate from large industrial aquaculture operations, but without quantifiable parameters for what this means as official data on the structure of these chains (e.g. the average size of farms or the share of production of household farms over the total production) is missing.

farms that are still characterized as small to medium sized (Belton et al. 2018; Bush et al. 2019; Samerwong et al. 2018; Trifković, 2014). In each of these sectors, producers supplying Northern markets have been the main target of Northern-led certification schemes, but various barriers exist for them to adopt relevant transnational standards (Ponte et al. 2014). Partly as a reaction to pressure to obtain a certification, homegrown governance initiatives have emerged in different forms. By combining web-based archival research, field interviews, and a review of secondary literature, we trace the processes through which sustainable commodity governance was established in each country. We find that while many different Southern initiatives seek to provide a more pragmatic solution than formal transnational standards, for sustainable development within a local context and strengthen the position of producers in global value chains, their characteristics and features vary depending on who is supplying governance. In Thailand and Vietnam, national governments take the lead in designing and implementing public standards for sustainable aquaculture. By contrast, in the Hainan province of China, the local tilapia industry, supported by civil society actors, has launched a multi-stakeholder roundtable to improve industry's capacity for sustainable production.

Based on the empirical evidence found in our three cases, we inductively arrive at a 'supply-and-demand' based explanation for the rise of different forms of sustainable commodity governance in the Global South.[3] Specifically, we suggest that the capability building approach is likely to occur when state actors do not supply a top-down standard system. Conversely, when local governments in Southern producer countries take action first, their early decisions often have path-dependent consequences that condition the nature and form of subsequent governance efforts, often locking into standard systems despite considerable setbacks (Auld 2014). While we do not

[3] By focusing only on homegrown governance in Southern producing countries, we do not claim the validity of our findings to the governance initiatives led by Northern actors.

assess the effectiveness of different types of Southern homegrown governance, through this exercise in concept building and inductive explanation, this paper makes several contributions to the literature on sustainable commodity governance. First, by treating Southern states, businesses, and civil society groups as active rule-makers, instead of passive rule-receivers, our study adds a new dimension to existing research on sustainable commodity governance. Moreover, we provide a novel conceptualization of two different forms of homegrown governance in the Global South and offer a preliminary hypothesis on the conditions that lead to the emergence of one form or another. Our empirical work demonstrates the diversity of Southern-led initiatives and implications for potential North-South and public-private interactions. Lastly, the case studies on major producer countries yield new insights into the promise and pitfalls of certain forms of aquaculture governance.

2. A preliminary typology of Southern-led sustainability governance

Over the last decade, Southern producers and their governments in global value chains have begun to question the authority of transnational sustainability governance and even resist Northern-developed rules by launching counter-initiatives. We identify two ideal types of Southern-led governance aimed at promoting sustainable production, while acknowledging that more may exist. Each one is characterized by a different problem-solving logic (Locke 2013; Auld et al. 2015). The first, and also the most common, is sustainability standard systems. Its regulatory mechanism focuses more on a "logic of control" as identified by Auld et al. (2015), which emphasizes ameliorating the environmental and social externalities of corporate behaviors by creating institutions that require market agents to undertake activities beneficial to society. Prescriptive rules, certification and accreditation, and product tracking, constitute the key features of this model,

although, different schemes may vary in their primary concerns, the content of standards, and the degree of involvement from NGOs, businesses, and governments.

Transnational standard systems have primarily been championed by non-state actors. A key assumption of such schemes is that Southern governments lack the capacity or willingness to provide public goods and therefore need private rules to fill relevant "regulatory voids" (Börzel & Risse 2010). In buyer-driven global value chains, lead firms under pressure from NGOs, often ask their Southern suppliers to follow sustainability standards to follow practices that extend beyond compliance with local laws (Bernstein & Cashore 2007; Bartley 2007; van der Ven 2018). Certification – often in the form of independent third-party audits – is used by lead firms as a tool to enforce rules, monitor compliance, and reward compliant suppliers. However, this power asymmetry is increasingly under attack in several value chains where Southern producers have rapidly consolidated their market power and increased their regulatory capacity (Gereffi 2014). As a result, developing country governments, powerful Southern businesses, or affiliated industry groups may initiate their own standards to regain national sovereignty or contest the rule-making authority of Northern actors (Hospes 2014; Schouten & Bitzer 2015). Together, these homegrown initiatives in the South follow a regulatory model based on standards and certification to seek top-down control.

The second form of governance is capability-building programs, which feature prominently in Locke's (2013) study on private labor regulation. Rather than focus on implementing formal rules and verifying compliance, this model acknowledges the difficulties for Southern producers to adopt stringent standards, and therefore promotes sustainable production through technical assistance, skill development, and organizational learning. Its normative underpinning is therefore more akin to a "logic of empowerment" with an explicit goal of

redistributing power and resources to marginalized actors in global value chains (Auld et al. 2015). The roots of the concept of capability building can be traced back to a participatory approach to rural development, which questions the value of assessment by external actors, but encourages communities to cultivate local knowledge to plan and act (Chambers 1994). For global value chain scholars, capability building is associated with industrial upgrading that enables the redistribution of power and value captured between lead firms and downstream suppliers (Kaplinsky 2000). Operationally, ideal capability-building programs are inclusive roundtables involving all stakeholders along a value chain to define and share good practices, identify and solve problems, and support continuous improvement (Bennett 2017, Locke 2013).

While the logic of capability-building can be reflected in certification schemes (as in some Fairtrade programs), our focus is on initiatives that adopt a governance mechanism different from standard systems. Compared to certification schemes, capability-building programs that promote structured problem-solving and organizational learning have been found more effective in improving labor conditions in many developing countries (Locke 2013). Additionally, research on the fisheries sector has shown that certification is not always viable in the South, especially for small-scale producers who frequently lack the capacity to meet basic criteria like documentation and record keeping (Marschke & Wilkings 2014; Pérez-Ramírez et al. 2012). Therefore, capability-building roundtables based on multi-stakeholder involvement may offer a more pragmatic, bottom-up approach to promote sustainable practices in Southern producers. While we cannot comment on whether such initiatives yield better social or environmental outcomes, they are often more successful at engaging local stakeholders in dialogue.

3. Research design

To understand the conditions leading to different types of Southern-led governance, we study the development of sustainable aquaculture governance in Thailand, Vietnam, and China. The three chosen countries are world-leading producers of farmed seafood.[4] Across all cases, we focus our analysis on sectors that have important export markets in the Global North, are produced by many small to medium-size commercial farms managed by households, and are also the primary subject of homegrown governance. These include: shrimp for Thailand, pangasius for Vietnam, and Tilapia for China. This case selection strategy allows us to control for value chain structure in explaining the differences across the relevant initiatives.[5] We draw data from government and NGO documents, interviews with key informants, and secondary literature. As the initiative in China was not covered by the scholarly literature, one of the authors did fieldwork between March and June 2017 to conduct 27 interviews with stakeholders in this initiative. For the cases of Thailand and Vietnam, we complement secondary data with 8 phone interviews with NGO representatives and researchers.

4. Responses of Southern producer countries to transnational private governance

4.1. Thailand: certification as a proactive government strategy

Thailand became the world's largest producer and exporter of farmed shrimp in the 1990s (see Figure 1a). Since then, with the government's support, an integrated shrimp value chain from hatcheries and farms to processing and marketing companies gradually emerged, although most

[4] As of 2015, China, Vietnam, and Thailand rank the 1st, 3rd and 12th largest aquaculture producer in the world (FAO 2018a).

[5] We recognize that the value chain structure is an important factor explaining variation in the features of Southern homegrown initiatives (Bush et al. 2019). But the three cases here have shown similar value chain structure during the time the relevant homegrown initiatives were created (see Samerwong et al. 2018; Trifković, 2014; Wang et al. 2016). For this reason, we do not consider the influence of value chain structure in the current study. We thank an anonymous reviewer for raising this point.

producers remain small-scale farmers (Miranda 2010). The industry has been highly export-oriented: on average, over 95% of its production is sent abroad, especially to developed countries like the US (see Figure 1b). This trade relationship means the demand of Northern consumers has largely driven Thailand's shrimp production, making the industry sensitive to transnational sustainability standards.

Figure 1a. Thailand's production of farmed shrimp 1990 – 2015 (Source: FAO 2018a)

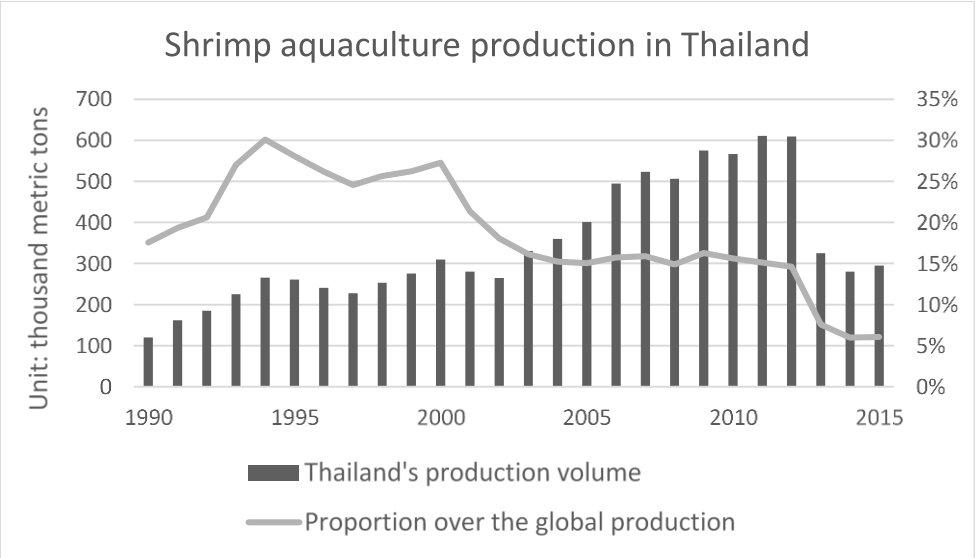
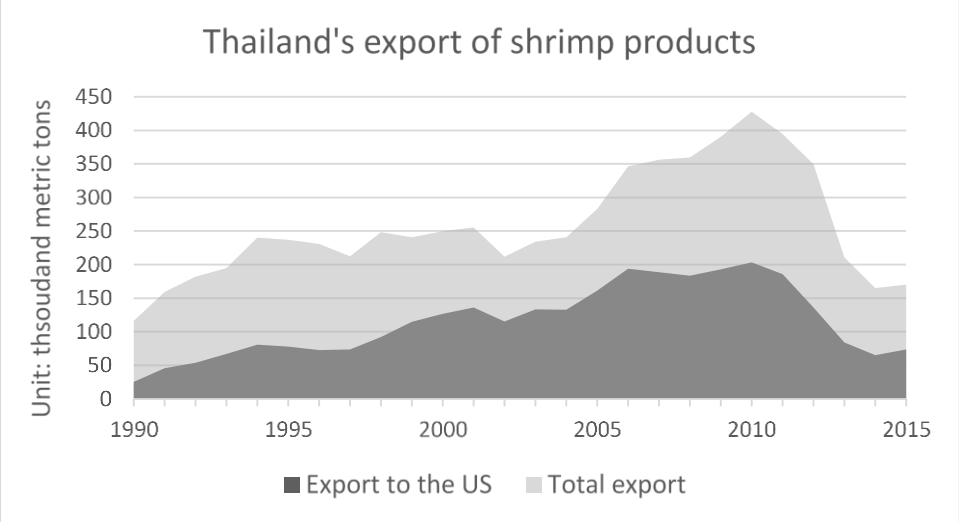


Figure 1b. Export volume of Thai shrimp products 1990-2015 (Sources: FAO 2018b and USDA 2018)



Shrimp is one of the first farmed seafood products to undergo controversy for its environmental impacts. In 1997, the Global Aquaculture Alliance (GAA) was established in the US by the shrimp industry and scientists to develop a code of practices for mangrove protection, and the project was later expanded as a certification scheme (BAP) operating since 2002. Following this move, shrimp has been targeted by other private eco-labeling schemes including GlobalG.A.P. and ASC (Auld 2014). Over time, certification has gained prominence in Northern markets, for example, in 2005 Walmart committed to sourcing only BAP-certified shrimp (van der Ven 2019).

At the same time, the Thai government has been proactive in promoting sustainable shrimp production and improving product quality. In 1998, Thailand's Department of Fisheries (DoF) issued a Code of Conduct (CoC) for sustainable aquaculture with the primary goal of upgrading the country's shrimp farming system to international standards including the FAO Code of Conduct for Responsible Fisheries, Codex Alimentarius on food safety, and ISO14001 environmental management standards (Manarungsan et al. 2005). The code was developed by the same technical experts as the GAA standard used at the time and modeled the latter's framework (Vandergeest 2007). Yet, the CoC was too demanding and costly for many producers, especially small-scale ones. Hence, the DoF developed a more limited standard on Good Aquaculture Practice (GAP) to regulate hygiene and drug use at farms and hatcheries. While the Thai GAP bore a resemblance to the European-led Global GAP standard, there is no formal connection between the two standards. The Thai CoC and GAP initiatives together constitute the "Thai Quality Shrimp" program, which was a first-party certification scheme as the DoF acted simultaneously as standard developer and compliance auditor (Corsin et al. 2007).

Overall, this program was conceived as part of the government's strategy to build a national reputation for quality Thai shrimp (Manarungsan et al. 2005). The relevant standards were largely set by government bureaucrats in consultation with industry representatives; farmers were almost entirely absent (Vandergeest 2007). The DoF used its extensive national network to introduce the standards to farmers, organize training and conduct monitoring. As a result, the program has emerged since the early 2000s as an important regulatory tool in Thailand's shrimp industry. According to data reported by the DoF in 2008, 72% of the pond area of shrimp in Thailand was certified to the basic national GAP standard and researchers found that farmers commonly perceive this homegrown standard as mandatory (Miranda 2010; Vandergeest & Unno 2012).

In sum, homegrown sustainability governance for Thailand's shrimp aquaculture has been driven by a proactive state strategy to secure access to Northern markets. The DoF has used a top-down approach to develop a national standard system with little involvement of farmers and other affected communities (Vandergeest 2007). Initially, as a first-party certification, the relevant standards were primarily implemented by government agencies. To support rule compliance, the DoF and its subnational units provided training for farmers and monitored their practices. Later, in an effort to present itself as equivalent to Northern-led certification schemes, the Thai government reformed its scheme to establish third-party verification and cover a broader set of sustainability issues, but the technical committee developing the new standard was still dominated by the state (Prompoj et al. 2011; Samerwong et al. 2018). Among its fourteen members, only two represent farmers (ACFS 2009). Without engaging less powerful actors such as civil society groups, the new scheme reemphasizes a logic of control but with stricter requirements.

4.2. Vietnam: VietGAP backed by the state

Driven by pangasius farming in the Mekong river delta, Vietnam has become a leading global aquaculture producer. With a 30-fold increase in production volume since the late 1990s, it dominates today's global pangasius supply (see Figure 2a). Pangasius is a popular, cheap substitute for some traditional marine species in Northern markets and export volumes have increased significantly in recent years (see Figure 2b). The US was originally the main destination of Vietnamese pangasius, but due to a high tariff imposed by the American government, the market has shifted since 2004 to Europe (Bush et al. 2009). While the average farm size remains small, the industry has increasingly become capital-intensive and further consolidated in recent years to establish a vertically integrated value chain linking farms and large processors (Belton et al. 2011; Marscheke & Wilkingson 2014; UNIDO 2015).

Figure 2a. Vietnam's production of pangasius 1997-2015 (source: FAO 2018a)

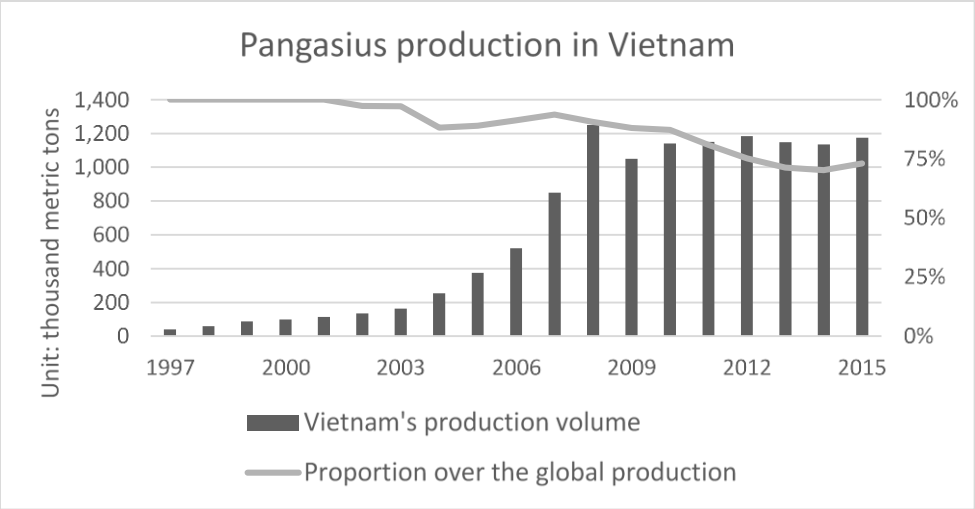
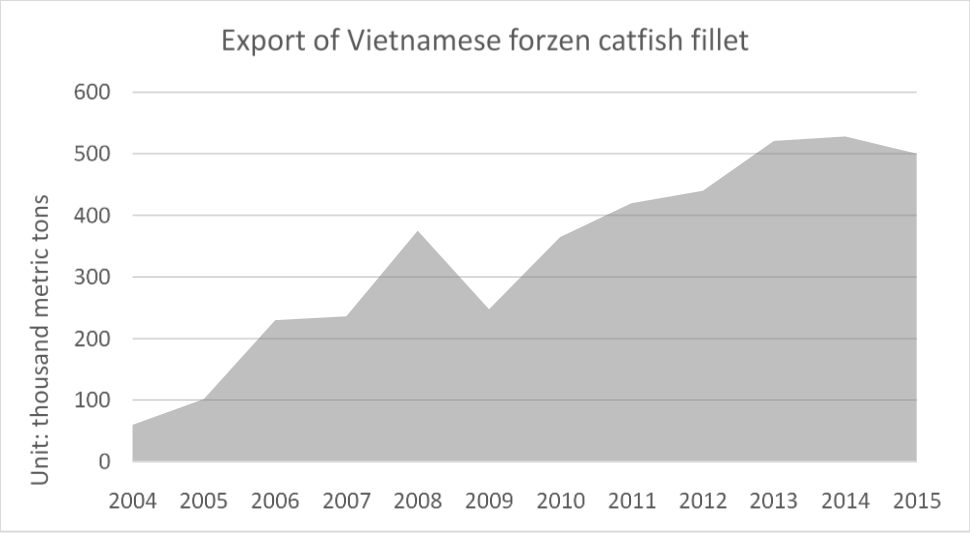


Figure 2b. Export volume of Vietnamese catfish fillet 2004-2015



(Source: FAO 2018b, we use catfish as a proxy as FAO does not list pangasius as a specific category.)

Pangasius became the subject of certification in the late 2000s. WWF started a stakeholder dialogue in 2007 to develop a sustainability standard for pangasius, which subsequently became an ASC standard in 2012 (ASC 2012). In the meantime, GlobalG.A.P. and BAP published their pangasius standards in 2009 and 2010. The scopes of these standards are similar insofar as they cover a range of sustainability issues (Belton et al. 2011). Together, their emergence has placed Vietnamese producers under increased pressure to get certified for the entry into high-end Northern markets.

When transnational private certification began to rise, the Vietnamese government established a national sustainability standard for pangasius aquaculture. In 2011, Vietnam's Directorate of Fisheries (D-Fish) issued a voluntary standard for good aquaculture practice (hereafter "VietGAP").[6] While sharing the GAP acronym, this too was completely independent of GlobalG.A.P. Originally, this initiative was motivated mainly by the government's plan to further

[6] VietGAP can be referred to the Vietnamese national standards for Good Agricultural Practice covering aquaculture, crops and livestock, but we use the term to denote the standard on aquaculture.

aquaculture industrialization and promote pangasius exports, rather than assisting producers to incrementally improve their practices (Nguyen 2010; Bush et al. 2009). VietGAP has mirrored transnational standards by addressing sustainability themes including food safety, animal welfare, environmental impact, and socio-economic issues (Marscheke & Wilkingson 2014; Nguyen 2015). It also requires third-party verification although international experts often find that the scheme lacks accreditation and stringent monitoring of certification bodies to control the quality of audits.[7]

The creation of VietGAP coincided with an outbreak of criticisms against Vietnamese pangasius in Europe. In 2008, European media began to report pangasius as unsafe and environmentally unsustainable, and attacks became heated in 2010 after some politicians made sensationalist claims about pangasius' negative impacts and WWF recommended that consumers avoid the fish (Bush & Dujif 2011; Little et al. 2012). Despite lacking scientific evidence, these criticisms have damaged pangasius' reputation and reduced sales to Europe since 2010 (Little et al. 2012).

Under the pressure of market decline, the Vietnamese government strengthened its support for VietGAP. In 2012, the government issued strong policies to support aquaculture projects compliant with VietGAP, including funding for the analysis of environmental conditions of production areas, training of farmers, and subsidies for certification costs.[8] Meanwhile, D-Fish set a target of having 30% of all aquaculture establishments certified to VietGAP by 2012 and 80% by 2020 (VASEP 2012). In 2014, the government further increased its targets by requiring all commercial pangasius farms to be certified by VietGAP or an equivalent international scheme by the end of 2015 (Socialist Republic of Vietnam 2014). Given that the implementation of VietGAP

[7] Phone interview with a program official of a transnational certification scheme, 2 November 2017.
[8] See the government's Decision No. 01/2012/QD-TTg, retrieved from https://thuvienphapluat.vn/van-ban/Linh-vuc-khac/Decision-No-01-2012-QD-TTg-on-some-policies-supporting-the-application-150871.aspx.

is less costly than its transnational counterparts, this regulation has made VietGAP *de facto* mandatory. Through this requirement, the government aims to signal its commitment to sustainable aquaculture and defend charges against pangasius (White 2017). D-Fish also conceived VietGAP as an entry-level standard for producers to upgrade their practices, and has proactively sought collaboration with transnational schemes such as ASC and GlobalG.A.P, to help VietGAP-certified producers get other certificates (ASC 2018; GlobalG.A.P. 2016). To provide more economic incentives for producers, the government has also attempted to promote VietGAP in the domestic retail market (VASEP 2013). More recently, the rise of China as the world's largest market of Vietnamese pangasius may provide further opportunities for VietGAP as Chinese consumers' demand for fish quality continues to increase.[9]

To summarize, VietGAP is an entirely top-down initiative where the government controls the whole governance process from standard-setting to implementation, with little involvement of farmers and non-industry stakeholders. Charges of unsustainability and an ensuing decline in European sales has led the government to further support VietGAP and make it *de facto* compulsory in the pangasius industry. To gain buy-in from producers and buyers, the government has framed VietGAP as a stepping stone towards Northern-developed transnational standards, instead of an alternative to them.

4.3. China: the emergence of a non-state capability-building roundtable

China has been the world's largest producer of farmed seafood since the early 1990s (FAO 2018a). Rapid expansion of tilapia farming in Southern China has made the country the world's largest tilapia producer, representing over 40% of the global production volume (see Figure 3a). Tilapia

[9] See FAO (2019) and this point was also mentioned in our interview with a SFP official, 16 March 2018.

has grown in China as an export-oriented species with more than half of the products being sent abroad (CAPPMA 2017). Until the mid-2000s, the US was the largest importer of Chinese tilapia, but more recently, other emerging markets have taken its place (see Figure 3b).

Figure 3a China's production of tilapia 1990-2015 (Source: FAO 2018a)

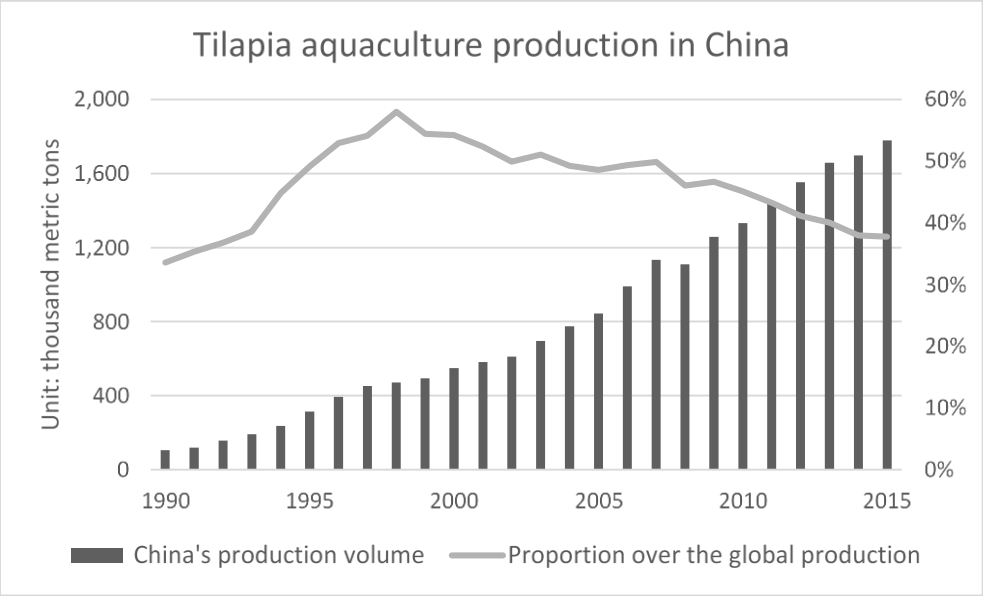
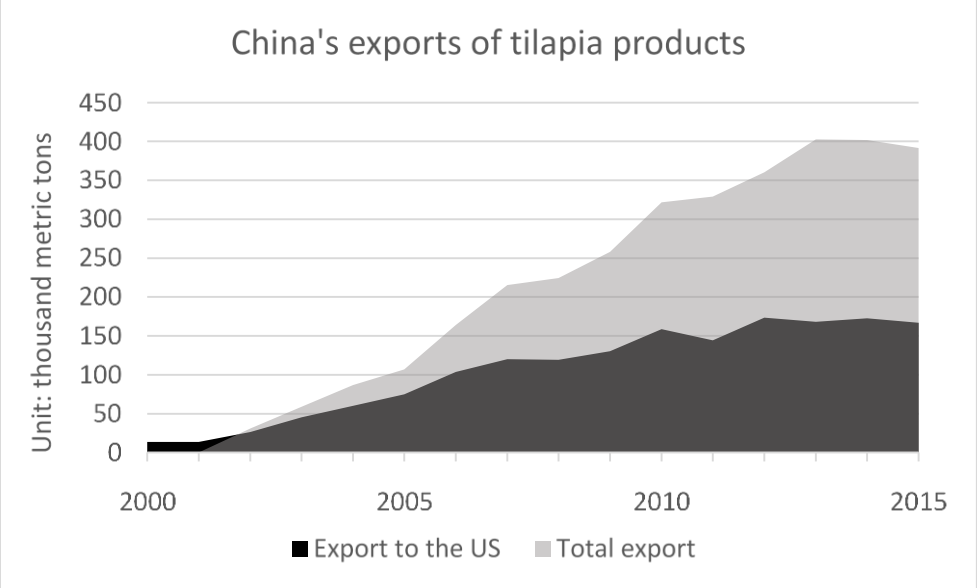


Figure 3b. Export volume of Chinese tilapia products 2002-2015 (Sources: FAO 2018b; USDA 2018)



Tilapia has been the target of several transnational certification schemes over the last decade. Many Chinese producers have sought certification due to American buyers' demand, especially after big retailers like Walmart set requirements for their suppliers (van der Ven 2018).[10] Despite the rise of transnational governance in the global tilapia value chain, Chinese regulators did little to react to such pressure. In 2008, the Chinese government launched China Good Agricultural Practices (ChinaGAP), a beyond-compliance third-party certification scheme covering aquaculture. But the government's efforts to market this scheme have remained insufficient in the tilapia industry with only 6 producers certified as of 2017 (Chen et al. 2017).

The lack of government reaction to transnational certification created a governance gap in China's tilapia sector. This gap is especially salient in Hainan, China's second largest tilapia-producing province, where the industry has been highly dependent on export sales (CAPPMA 2017).[11] Enormous barriers exist for producers in Hainan to adopt transnational standards. Nearly 90% of the farms in the region remain small or medium-sized family operations, and most of them lack enough knowledge about sustainable farming to implement the technocratic transnational standards that are often geared towards large industrial farms (Wang et al. 2016).[12] Moreover, the sector has yet to establish a traceability system for processors to fully identify the sources of their purchased fish.[13] Certification costs have also reduced producers' benefits without a stable price premium.[14] Additionally, extreme weather and disease outbreaks over the last decade in Hainan

[10] Interview with the secretary general of HNTSA, Haikou, 10 April 2017.
[11] The low competitiveness of Hainan tilapia in the domestic market is due to the province's geographical location as China's Southernmost island.
[12] Despite the lack of official data, aquaculture experts that we interviewed suggest that household farms account for the majority of tilapia production in Hainan.
[13] Interview with an NGO official working on aquaculture, Fuzhou, 30 June 2017.
[14] Interview with the secretary general of HNTSA, Haikou, 10 April 2017.

have further threatened the industry's economic sustainability as many farmers, hatcheries, and processors went bankrupt (Wang et al. 2016).

The willingness of Hainan's tilapia industry to promote sustainability governance was triggered after Sustainable Fisheries Partnership (SFP), an international NGO, began an aquaculture improvement project in the region in 2011. SFP advocates "zonal aquaculture management" that organizes farmers during the production process to jointly control disease and environmental pollution (Immink 2016). Initially, SFP tried to gain support from American buyers to launch a zonal management project in Hainan, but these buyers only wanted farm-level certification (SFP 2016). To move the project forward, the then-SFP China Program Manager, Han Han, decided to approach local businesses. She found common interests with Hainan's largest feed distributor, which has been eager to reform the industry while exploring business opportunities in the provision of technical services to farmers.[15] With this company's support, Han soon convinced a few other industry stakeholders including a feed mill, a hatchery, and two processors, to launch the Hainan Tilapia Sustainability Alliance (HNTSA) in November 2013.[16] Despite the fact that Han was working for SFP, the HNTSA project was designed independently and relied on her personal efforts, thereby making it a homegrown governance initiative. Han later created a local NGO to support the initiative.

HNTSA has been designed as a cooperative platform involving all stakeholders in the value chain to promote sustainable production through zonal management and product traceability.[17] It is governed by a board of directors that represents different stakeholders, but at least half of the members must be farmers. To govern the production process, HNTSA set a Code of Good Practice

[15] Interview with Han Han, Haikou, 10 April 2017.
[16] Skype interview with a SFP official, 16 March 2018; see also SFP 2016.
[17] See the Alliance's website at http://www.hntsa.org/index.php?c=content&a=list&catid=33.

(CoGP) that provides technical guidance for raising safe and healthy tilapia while minimizing environmental pollution and disease risks (HNTSA 2015). The development of the Code started from roundtables in Hainan's major production areas to collect stakeholders' opinions; the Alliance then worked with Chinese experts to draft the code, and after several rounds of public consultation, published the first version of the CoGP in 2015 (SFP 2016). Hence, unlike transnational standards set by Northern experts without experience in tilapia farming, this Code is based on the input of local stakeholders and takes into account specific environmental conditions and aquaculture practices in Hainan and therefore provides a "locally-relevant solution" for sustainable aquaculture.[18]

In lieu of performing routines audits, the Alliance has built a network of technicians to provide guidance for farmers and monitor indicators including water quality and disease occurrence on a weekly basis to facilitate farmers' learning.[19] Based in farming areas, these technicians – usually fish veterinarians or feed distributors – work part-time for the Alliance and offer their services free of charge. The data collected by the Alliance has been helpful in generating feedback on the Code, which was updated in 2016. According to the Alliance, their system helps farmers "improve their practices step by step towards a high bar" and ensures the quality of compliance through "long-term monitoring".[20] Since 2015, HNTSA has attracted over 50 pilot farms to adopt the CoGP and over 400 farmers have participated in its training on sustainable farming (HNTSA 2017). Additionally, the Alliance has strived to brand Hainan tilapia by building connections with downstream buyers in both international and domestic markets (HNTSA 2017).

[18] Interview with Han Han, Haikou, 10 April 2017.
[19] The weekly monitoring data are recorded in a database accessible on the Alliance's website, http://www.hntsa.org/index.php?c=content&a=list&catid=51&page=6.
[20] Interview with the secretary general of HSTSA, Haikou, 10 April 2017.

These efforts aim at adding value to sustainably-produced tilapia in order to improve farmers' well-being and increase the industry's economic sustainability.

Hence, HNTSA is a homegrown initiative led by "local champions" in the industry and an NGO.[21] In contrast to standard systems, it adopts a capability-building approach to help farmers follow a code through technical guidance and long-term monitoring. Its code has been based on consultation with local stakeholders to reflect conditions in Hainan and the Alliance's governance structure ensures representation of smallholders. The initiative also seeks to empower Southern producers in global value chains by branding Hainan-produced Tilapia. The lack of state support in the initial development of the Alliance have created a strong identity of being an "independent and multi-stakeholder" roundtable.[22] Even if government agencies have recently sought to collaborate with the Alliance, the latter always believe that its independence vis-à-vis the state is a key advantage in maintaining farmers' support and gaining market uptake.

5. Explaining variation in governance forms

Table 1 summarizes our comparative analysis. It shows that homegrown governance in Thailand, Vietnam, and China takes different forms, despite the fact that each initiative emerged as a response to Northern-developed private governance. In Thailand and Vietnam, the state took the lead in developing national certification standards and implementing them through a top-down approach. In contrast, in the Hainan province of China, a multi-stakeholder roundtable arose from the bottom-up as a result of the government's reluctance to promote a national standard. The resulting capacity-building effort consists of partnerships between the local industry and NGOs to develop a code of good practice to improve production in small-family operated farms. While

[21] Skype interview with a SFP official, 16 March 2018.
[22] Interview with the secretary general of HSTSA, Haikou, 10 April 2017.

government-led standards emphasize a logic of control to reduce environmental impacts of aquaculture, HNTSA focuses more on empowering the local industry and improving the well-being of farmers.

Table 1 Comparison of homegrown governance initiatives in Thailand, Vietnam, and China

	Main objectives	**Governance entrepreneurs**	**Institutional features**
Thai Quality Shrimp (became since 2009 Thai Agricultural Standard on Good Aquaculture Practice)	• Providing a less costly and more practical solution to assure product quality • Regaining regulatory sovereignty & incorporating local knowledge • Maintaining market access	Department of Fisheries, Ministry of Agricultural and Cooperatives of Thailand	• Initially first-party certification, later changed to third-party • Voluntary standard • Top-down, state-led standard
VietGAP	• Increasing productivity and output • Providing an easier way towards sustainable production • Protecting exports & promoting quality products domestically	Directorate of Fisheries, Ministry of Agriculture and Rural Development of Vietnam	• Third-party certification • Initially voluntary, became *de facto* mandatory in 2014 • Top-down, state-led standard
Hainan Tilapia Sustainability Alliance	• Improving farming practices by considering local circumstances • Enabling coordination & cooperation among stakeholders along the value chain • Branding Hainan Tilapia & expanding the market	• Kingwin Aquaculture Ltd., a feed distributor in Hainan • Sustainable Fisheries Partnership, then a local NGO - China Blue	• No certification requirement, but regular monitoring • Smallholders have strong representation • Bottom-up, multi-stakeholder capacity building program

Building on these empirical cases, we hypothesize that the supply and demand for governance can help explain variation in the types of sustainable commodity governance in the

Global South. The supply-and-demand analytical lens has been widely used by transnational governance scholars to conceptualize the rise of private institutions: supply refers to actors' expertise, economic power, or moral authority; demand indicates the anticipated benefits of solving cooperation problems (Büthe 2010; Green 2014). By focusing explicitly on the agency of Southern actors, we suggest that while similar incentives (demand) may be at play in driving different types of initiatives, powerful governance entrepreneurs in the South, like states, are likely to supply standard systems whereas less powerful actors like NGOs and producer groups tend to opt for a capability-building approach. Figure 4 illustrates the hypothesized pathways leading to the two types of homegrown sustainability governance in the South.

Figure 4 A model explaining the rise of sustainable commodity governance in the Global South

5.1 Demand

On the demand side, we find that all the initiatives in our study have served mainly as a response to preexisting transnational governance led by Northern actors. Looking at the claims of these initiatives, we find three similarities in their motivations. First, they all aim to provide less costly and more feasible solutions than Northern-developed governance for improving farming practices and product quality. In Thailand, government-led certification may bring benefits to farmers with less financial burden. In Vietnam, the government framed the standard as an easier

way for farmers to build a clean seafood value chain and a stepping stone towards transnational standards. In China, the HNTSA's founders have aimed to provide an alternative to costly and regionally-irrelevant standards set by Northern actors through free technical assistance and continuous training for farmers. Each of our cases responds to the domination of Northern businesses in global value chains and the marginalization of Southern stakeholders in the transnational standard systems (Klooster 2006; Hospes 2014).

Second, these Southern-led initiatives meet the demand to consider local circumstances and knowledge in sustainability standards or codes. This demand has been especially strong in Thailand and China. Vandergeest & Unno (2012) have shown that Thai state officials find transnational private certification unwilling or unable to consider local knowledge. In China, HNTSA has noted a strong intention to develop a code based on local conditions and knowledge from stakeholders in Hainan in order to more effectively address challenges that producers face. Therefore, Southern actors initiate sustainability governance to correct over-simplified and often technocratic Northern-led standards (Belton et al. 2009; Ponte & Cheyns 2013).

Lastly, homegrown initiatives in all three countries seek to build the reputation of Southern producers, and ultimately help secure or expand their business in existing or new markets. Some variation exists in this respect as Thai standards have mainly spoken to international markets whereas both VietGAP and HNTSA have also aimed to expand their domestic market presence. Notably, HNTSA has been particularly eager to build a regional brand in the fast-growing Chinese market. From this perspective, the rise of domestic or other Southern markets could be important for the emergence of homegrown sustainability governance in the Global South. This dynamic seems particularly salient to the aquaculture sector in the Global South where the majority of production is aimed at satiating growing domestic demand (Belton et al. 2018). If homegrown

initiatives begin to gain traction with buyers or consumers in emerging markets, then we can expect them to become even stronger in the future. Therefore, growing consumption in the Global South can provide opportunities for Southern-led governance to get buy-in in domestic and other emerging markets, especially when Northern-led schemes have been far from popular in these markets (Wijaya & Glasbergen 2016; Schleifer & Sun 2018).

5.2 Supply

While there is considerable overlap on the demand side, we can see significant variation in the actors supplying homegrown governance in each of the three cases. Considering the power of different actors, we identify two typical clusters of governance entrepreneurs that may place countries on different pathways. Our case studies on Thailand and Vietnam suggest that when the state plays a dominant role in launching homegrown governance, they are likely to take a top-down approach focused on rule-setting through standards and certifications. They are able to do so since they enjoy the unique authority of setting and implementing domestic regulations (Bartley 2014). Given the importance of shrimp and pangasius exports for Thailand and Vietnam respectively, government-led standard systems emerged in the Global South because the stakes of these commodities are high for the domestic economy. This type of initiative thus emphasizes a logic of control to provide solutions more suitable to Southern producers. Depending on their interests and capacity, Southern states can choose to make their standards either voluntary or mandatory.

By contrast, when government is slow or reluctant to act, producers and NGOs may emerge as governance entrepreneurs. This is the case in Hainan, China, where producers and NGOs started their own bottom-up governance initiative to address problems in tilapia farming. Absent the rule-making authority of the state, less powerful governance entrepreneurs choose multi-stakeholder

roundtables to collectively define rules and incrementally improve practices as a means of gaining buy-in and legitimacy with producers. This technique appeals to upstream producers who often feel marginalized in global value chains, thereby increasing the chances for local buy-in. The lack of state involvement is critical to the rise of HNTSA and its CoGP. In this case, the limited economic significance of tilapia industry has prevented Chinese national and local governments from developing and enforcing their own standards. Hence, a window of opportunity opened for non-state actors in Hainan to supply governance.

5.3 Path-dependence of sustainable commodity governance

Our cases suggest that path-dependent processes can consolidate early choices made by governance entrepreneurs and increase their institutional variation over time (Auld 2014). In the case of HNTSA in China, the early decision to not include government representatives has gradually come to form an important aspect of program's identity. According to them, the local government has a different agenda than the industry such that "they (government officials) could close the project down or drive it towards something different if they knew the initial process".[23] Accordingly, from the very beginning, the relevant governance entrepreneurs have believed that the government cannot understand their motivations and consider their independence a priority. This strategy persists even if many government agencies have, over time, become willing to support the Alliance. Following a similar logic, the fact that the Thai and Vietnamese governments developed their own standards in response to transnational certification has hindered the emergence of bottom-up initiatives like HNTSA in these countries.[24] In Vietnam, the government

[23] Interview with a founder of the Alliance, Haikou, 10 April 2017.
[24] Skype interview with a SFP official, 16 March 2018.

strengthened its top-down approach to promote homegrown governance by making VietGAP mandatory, thereby negating the chance of other initiatives to gain a foothold.

6. Conclusion

While a vibrant literature has emerged to explore the interaction of transnational private governance systems (Eberlein et al. 2014), comparatively less effort has examined the responses of Southern actors—including states, businesses and NGO—to these systems. Too often, Southern producer countries are portrayed as the passive targets of governance. Our analysis offers a corrective by conceptualizing Southern actors as active governance entrepreneurs. Recognizing the diversity of governance created *by* and *for* Southern actors, we identify two types of sustainable commodity governance with different problem-solving logics that are likely to emerge in the South: top-down standard systems and bottom-up capability-building roundtables. The latter has received scant attention in the existing literature on sustainable commodity governance.

We assess conditions leading to the emergence of different types of homegrown governance for sustainable aquaculture in Thailand, Vietnam and China. While initiatives in all three countries have attempted to provide easier solutions for farmers to achieve sustainable production, promote locally adapted standards, and secure or expand market access, the governments of these countries have responded differently in accordance with the importance of the particular aquaculture industry to the national economy. In Thailand and Vietnam, the national governments moved quickly to establish standard systems to protect the reputation of their producers in global markets and safeguard vital industries. By contrast, when an industry is less integral to the national economy, as in China's tilapia industry, and the government does not take the lead, private actors like businesses and civil society groups pilot their own initiatives using the

capability-building model to promote good practices and long-term learning for sustainable production.

Based on this initial research, we propose a supply-and-demand based explanation for variation in the form of Southern-led homegrown initiatives. We suggest that, while similar demand-related factors motivate Southern actors to launch initiatives of both types, ultimately, the type of sustainable commodity governance is determined by who supplies it. Specifically, state-sponsored programs tend to be top-down standard-setting efforts, whereas industry and civil society-led initiatives tend to be bottom-up capability-building efforts. Considering the evolution of different initiatives, we also suggest that early decisions on the governance model made by the suppliers have path-dependent consequences that condition the nature and form of subsequent efforts. Of course, this hypothesis is based on a small number of cases and requires further testing across a larger and more diverse sample of countries in the Global South. Nonetheless, we see this as an important area for future research.

The extant literature on transnational private governance interactions tends to focus on two potential outcomes: "racing-to-the-top" where competition lead to higher standards or "racing-to-the-bottom" where the existence of multiple standards leads standard-setters to lower the bar for certification (Fransen 2011). Our analysis recognizes the emergence of Southern-led governance as a means of challenging the hegemony of Northern standards, but suggests that it is not as simple as racing-to-the-bottom. Depending on the governance suppliers, homegrown initiatives may hold a better chance of gaining local stakeholders support, domestic market uptake, and creating meaningful behavioral change due to their careful attention to local context. Hence, the effects of the interaction are more complex than often theorized. Homegrown governance approaches have the potential to provide a tiered response to achieving certification and to reach more producers

(Tlusty et al. 2016). Being less costly and better adapted to local conditions, they may complement transnational standards and provide a pathway to higher levels of sustainability certification. Ultimately, any conclusion about the social and environmental outcomes of different types of governance may be premature, but capability-building roundtables, as the less prevalent of the two types of governance, certainly offer advantages in terms of their accessibility to local producers, ability to catalyze long-term learning, and adaptability to local conditions. At the same time, some state-led Southern standards appear purposefully designed to replace transnational standards, especially when they become mandatory, and therefore may simply be an instrument to expand the state's control over producers.

To conclude, we draw attention to some of the challenges and limitations facing homegrown sustainability governance in the Global South. For government-led standards, the closed-door approach to rule-making process and lack of capacity building may impede efforts to deliver relevant solutions for smallholders (Marschke & Wilkings 2014). For capability building-programs, economic sustainability is a key concern as initiatives like HNTSA often rely on donors' support, and accordingly, market recognition is needed for the Alliance continuing to provide free services. As Southern-led governance initiatives remain in their infancy, debates may continue about their advantages compared to transnational sustainability standards. Of particular interest is the question of whether homegrown governance can successfully complement existing transnational certification without 'racing-to-the-bottom' and lowering the bar for the industry (Tlusty et al. 2016). Further research into the complementary or competitive nature of governance interactions is needed to address this question. However, if homegrown initiatives are in fact a better way of engaging Southern producers, then Northern NGOs and donors might better direct their resources towards supporting local actors to develop homegrown solutions.

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References

ACFS. (2009). *Good Aquaculture Practices for Marine Shrimp Farm*. Ministry of Agriculture and Cooperatives, Thailand.

Andonova, L. B., Betsill, M. M., & Bulkeley, H. (2009). Transnational Climate Governance. *Global Environmental Politics*, *9*(2), 52–73.

ASC. (2018). New ASC-VietGAP Benchmark Provides Guidance for Vietnamese Farmers. Retrieved from https://www.asc-aqua.org/news/latest-news/new-asc-vietgap-benchmark-provides-guidance-for-vietnamese-farmers/

Auld, G. (2014). *Constructing Private Governance: The Rise and Evolution of Forest, Coffee, and Fisheries Certification*. New Haven: Yale University Press.

Auld, G., Renckens, S., Cashore, B. (2015). Transnational private governance between the logics of empowerment and control: Logics of empowerment and control. *Regulation & Governance*, *9*(2), 108–124.

Bartley, T. (2014). Transnational governance and the re-centered state: Sustainability or legality?: Re-centered state. *Regulation & Governance*, *8*(1), 93–109.

Bartley, T. (2007). Institutional Emergence in an Era of Globalization: The Rise of Transnational Private Regulation of Labor and Environmental Conditions. *American Journal of Sociology*, *113*(2), 297–351.

Belton, B., Bush, S. R., Little, D. C. (2018). Not just for the wealthy: Rethinking farmed fish consumption in the Global South. *Global Food Security*, *16*, 85–92.

Belton, B., Haque, M. M., Little, D. C., Sinh, L. X. (2011). Certifying catfish in Vietnam and Bangladesh: Who will make the grade and will it matter? *Food Policy*, *36*(2), 289–299.

Belton, B., Little, D., Grady, K. (2009). Is Responsible Aquaculture Sustainable Aquaculture? WWF and the Eco-Certification of Tilapia. *Society & Natural Resources*, *22*(9), 840–855.

Bennett, Elizabeth A. 2017. "Who Governs Socially-Oriented Voluntary Sustainability Standards? Not the Producers of Certified Products." *World Development* 91: 53–69.

Bernstein, S., van der Ven, H. 2017. Best Practices in Global Governance. *Review of International Studies* 43(3): 534–56.

Bernstein, S., Cashore, B. (2007). Can non-state global governance be legitimate? An analytical framework. *Regulation & Governance*, *1*(4), 347–371.

Börzel, T. A., Risse, T. (2010). Governance without a state: Can it work? *Regulation & Governance*, *4*(2), 113–134.

Brandt, Willy. 1980. *North-South: A Programme for Survival; Report of the Independent Commission on International Development Issues*. Cambridge, MA: MIT.

Bush, S. R., Belton, B., Little, D. C., Islam, M. S. (2019). Emerging trends in aquaculture value chain research. *Aquaculture*, *498*, 428–434.

Bush, S. R., Duijf, M. (2011). Searching for (un)sustainabilty in pangasius aquaculture: A political economy of quality in European retail. *Geoforum*, *42*(2), 185–196.

Bush, Simon R., Khiem, N. T., Sinh, L. X. (2009). Governing the environmental and social dimensions of pangasius production in Vietnam: a review. *Aquaculture Economics & Management*, *13*(4), 271–293.

Büthe, T. (2010). Global Private Politics: A Research Agenda. *Business and Politics*, *12*(03), 1–24.

CAPPMA. (2017). *China's Tilapia Industry Development Report*. Presented at the The 14th China International Tilapia Industry Development Forum, Haikou.

Chambers, R. (1994). The origins and practice of participatory rural appraisal. *World Development*, *22*(7), 953–969.

Chen, L., Han, H., Wang, W. (2017). *Guideline on Responsible Seafood Sourcing for China Retail Industry*. The 10-Year Framework of Programme on Sustainable Consumption and Production Patterns.

Clay, J. W. (2004). *World agriculture and the environment: a commodity-by-commodity guide to impacts and practices*. Washington, D.C: Island Press.

Corsin, F., Funge-Smith, S., Clausen, J. (2007). *A Qualitative Assessment of Standards and Certification Schemes Applicable to Aquaculture in the Asia-Pacific Region*. Bangkok: FAO Asia-Pacific Fishery Commission.

D-Fish. (2017). VietGAP Standard - Easier way for farmers. Retrieved from https://tongcucthuysan.gov.vn/en-us/aquaculture/vietgap/doc-tin/009577/2017-12-24/vietgap-standard--easier-way-for-farmers

Eberlein, B., Abbott, K. W., Black, J., Meidinger, E., Wood, S. (2014). Transnational business governance interactions: Conceptualization and framework for analysis: Transnational business governance. *Regulation & Governance*, 8(1), 1–21.

FAO. (2019). Viet Nam on track for USD 2 billion annual pangasius export target as high prices continue. Retrieved April 21, 2019, from GLOBEFISH website: http://www.fao.org/in-action/globefish/market-reports/resource-detail/en/c/1176222/

FAO. (2018a). *Global Aquaculture Production 1950-2016* [Data set]. FAO. Retrieved from http://www.fao.org/fishery/statistics/global-aquaculture-production/query/en

FAO. (2018b). *Fishries Commodities and Trade 1976-2015* [Data set]. FAO. Retrieved from http://www.fao.org/fishery/statistics/global-commodities-production/query/en

Fransen, L. (2011). Why Do Private Governance Organizations Not Converge? A Political-Institutional Analysis of Transnational Labor Standards Regulation. *Governance*, *24*(2), 359–387.

Gereffi, G. (2014). Global value chains in a post-Washington Consensus world. *Review of International Political Economy*, *21*(1), 9–37.

GlobalG.A.P. (2016). Collaboration for Transparency Between GLOBALG.A.P. and the Ministry of Agriculture and Rural Development of Vietnam. Retrieved from https://www.globalgap.org/uk_en/media-events/news/articles/Collaboration-for-Transparency-Between-GLOBALG.A.P.-and-the-Ministry-of-Agriculture-and-Rural-Development-of-Vietnam/

Green, J. F. (2014). *Rethinking private authority: agents and entrepreneurs in global environmental governance*. Princeton: Princeton University Press.

HNTSA. (2015). A Code of Good Practice for Hainan Tilapia Farming. Hainan Tilapia Sustainability Alliance. Retrieved from http://www.hntsa.org/uploadfiles/pdf/CoGP-V1(2015).pdf.pdf

HNTSA. (2017). *Hainan Tilapia Sustainability Alliance 2016 Annual Report*. Haikou: HNTSA. Retrieved from http://www.hntsa.org/uploadfiles/pdf/HTSA%20%202015%20Annual%20Report.pdf

Hospes, O. (2014). Marking the success or end of global multi-stakeholder governance? The rise of national sustainability standards in Indonesia and Brazil for palm oil and soy. *Agriculture and Human Values*, *31*(3), 425–437.

Immink, A. (2016). Aquaculture's way forward is to embrace zonal management | Sustainable Fisheries Partnership. Retrieved from https://www.sustainablefish.org/Blog/Aquaculture-s-way-forward-is-to-embrace-zonal-management

Kaplinsky, R. (2000). Globalization and Unequalisation: What Can Be Learned from Value Chain Analysis? *Journal of Development Studies*, *37*(2), 117–146.

Klooster, D. (2006). Environmental Certification of Forests in Mexico: The Political Ecology of a Nongovernmental Market Intervention. *Annals of the Association of American Geographers*, *96*(3), 541–565.

Lernoud, J., Potts, J., Sampson, G., Garibay, S., Lynch, M., Voora, V., … Wozniak, J. (2017). *The State of Sustainable Markets: Statistics and Emerging Trends 2017*. Geneva: ITC, IISD, FiBL.

Little, D. C., Bush, S. R., Belton, B., Thanh Phuong, N., Young, J. A., & Murray, F. J. (2012). Whitefish wars: Pangasius, politics and consumer confusion in Europe. *Marine Policy*, *36*(3), 738–745.

Locke, R. M. (2013). *The Promise and Llimits of Private Power: Promoting Labor Standards in a Global Economy*. New York: Cambridge University Press.

Manarungsan, S., Naewbanij, J., Rerngjakrabhet, T. (2005). *Shrimp, Fresh Asparagus, and Frozen Green Soybeans in Thailand* (Agriculture and Rural Development Discussion Paper 16). Washington, D.C: The World Bank.

Marschke, M., Wilkings, A. (2014). Is certification a viable option for small producer fish farmers in the global south? Insights from Vietnam. *Marine Policy*, *50*, 197–206.

Miranda, I. (2010). *Farmed Pacific white shrimp: Thailand* (Seafood Report). Seafood Watch.

Nguyen, T. B. T. (2015). Good aquaculture practices (VietGAP) and sustainable aquaculture development in Viet Nam. In International Workshop on Resource Enhancement and Sustainable Aquaculture in Southeast Asia 2014, 85–92. Tigbauan, Philippines: Southeast Asian Fisheries Development Center.

Nguyen, V. H. (2010). *Current status of the pangasius industry in the Mekong Delta, Viet Nam*. Presented at the GOAL 2010, Kuala Lumpur. Retrieved from https://www.aquaculturealliance.org/wp-content/uploads/2015/04/goal10-Nguyen.pdf

Pérez-Ramírez, M., Phillips, B., Lluch-Belda, D., Lluch-Cota, S. (2012). Perspectives for implementing fisheries certification in developing countries. *Marine Policy*, *36*(1), 297–302.

Ponte, S., Kelling, I., Jespersen, K. S., Kruijssen, F. (2014). The Blue Revolution in Asia: Upgrading and Governance in Aquaculture Value Chains. *World Development*, *64*, 52–64.

Ponte, S., Cheyns, E. (2013). Voluntary standards, expert knowledge and the governance of sustainability networks. *Global Networks*, *13*(4), 459–477.

Prompoj, W., Songsangjinda, P., Nasuchon, N. (2011). Benchmarking of the Thai National Shrimp Certification Scheme against the FAO Aquaculture Certification Guidelines. *Fish for People*, *9*(3).

Samerwong, P., Bush, S. R., Oosterveer, P. (2018). Implications of multiple national certification standards for Thai shrimp aquaculture. *Aquaculture*, *493*, 319–327.

Schleifer, P., Sun, Y. (2018). Emerging markets and private governance: the political economy of sustainable palm oil in China and India. *Review of International Political Economy*, *25*(2), 190–214.

Schouten, G., Bitzer, V. (2015). The emergence of Southern standards in agricultural value chains: A new trend in sustainability governance? *Ecological Economics*, *120*, 175–184.

SFP. (2016). *Chinese Tilapia Aquaculture Improvement Project Archive*. Sustainable Fisheries Partnership. Retrieved from https://www.sustainablefish.org/Media/Files/AIP.../Chinese-Tilapia-AIP-Archive.

Smith, W. K., Nelson, E., Johnson, J. A., Polasky, S., Milder, J. C., Gerber, J. S., … Pennington, D. N. (2019). Voluntary sustainability standards could significantly reduce detrimental impacts of global agriculture. *Proceedings of the National Academy of Sciences*, *116*(6), 2130–2137.

Socialist Republic of Vietnam. (2014). Decree No.36/2014/ND-CP on raising, processing and exporting pangasius. Retrieved from http://www.itpc.gov.vn/investors/how_to_invest/law/Decree_No.36_2014/mldocument_view/?set_language=en

Tilman, D., Cassman, K. G., Matson, P. A., Naylor, R., Polasky, S. (2002). Agricultural sustainability and intensive production practices. *Nature*, 418(6898), 671–677.

Tlusty, M. F., Thompson, M., Tausig, H. (2016). Statistical tools to assess the breadth and depth of shrimp aquaculture certification schemes. *Fisheries Research*, *182*, 172–176.

Trifković, N. (2014). Certified standards and vertical coordination in aquaculture: The case of pangasius from Vietnam. *Aquaculture*, *433*, 235–246.

UNIDO. (2015). *Seafood Industry in Vietnam: Current Situation, Opportunities, and Challenges*. Hanoi.

USDA. (2018). Aquaculture Trade. Retrieved from https://www.ers.usda.gov/webdocs/DataFiles/47759/AquacultureTradeFull.xls?v=43167

van der Ven, Hamish. (2019). *Beyond Greenwash? Explaining Credibility in Transnational Eco-Labeling*. New York: Oxford University Press.

van der Ven, Hamish. (2018). Gatekeeper Power: Understanding the Influence of Lead Firms over Transnational Sustainability Standards. *Review of International Political Economy* 25(5), 624–46.

van der Ven, H. (2015). Correlates of rigorous and credible transnational governance: A cross-sectoral analysis of best practice compliance in eco-labeling: Best practice in eco-labeling. *Regulation & Governance*, *9*(3), 276–293.

Vandergeest, P., Unno, A. (2012). A new extraterritoriality? Aquaculture certification, sovereignty, and empire. *Political Geography*, *31*(6), 358–367.

Vandergeest, P. (2007). Certification and Communities: Alternatives for Regulating the Environmental and Social Impacts of Shrimp Farming. *World Development*, 35(7), 1152–1171.

VASEP. (2013). Promoting aquaculture under VietGAP. Retrieved from http://seafood.vasep.com.vn/seafood/701_8458/promoting-aquaculture-under-vietgap.htm

VASEP. (2012). More pangasius farmers adopt VietGAP standards. Retrieved from http://www.seafood.vasep.com.vn/Daily-News/53_6078/More-pangasius-farmers-adopt-VietGAP-standards.htm

Wang, J., Han, X., Han, H., Chen, C. (2016). *Hainan Tilapia Sustainability Development Report*. Haikou: HNTSA.

White, C. (2017). Vietnam, importers look to repair damaged image of pangasius in Europe. Retrieved from https://www.seafoodsource.com/news/supply-trade/vietnam--importers-look-to-repair-damaged-image-of-pangasius-in-europe

Wijaya, A., Glasbergen, P. (2016). Toward a New Scenario in Agricultural Sustainability Certification? The Response of the Indonesian National Government to Private Certification. *The Journal of Environment & Development*, *25*(2), 219–246.